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(54) Method for setting up an electronic programme journal and circuit for this purpose

(57) Method for setting up an electronic programme journal for television

5 and/or sound broadcasting programmes in a television receiver for the reception  
of television and/or sound broadcasting signals from different broadcasting  
services or programme carriers which emit programme data and/or programme  
information in video text (television text) programme overview pages of the  
respective broadcasting service and/or other broadcasting services or feed  
10 these into cable networks and/or send programme information as preliminary  
information to sound broadcasting transmission stations or feed this into cable  
networks or in which programme data are stored on the programme carrier, and  
for tuning the television reception apparatus as a function of this information,  
with the following features:

15 a) storing the received programme data and/or programme information of the  
video text (television text) pages, or the preliminary programme information,  
received with the sound broadcasting signals, or the programme data from the  
programme carrier in tabular form in a list in a programme journal storage  
device and showing it on the television reception apparatus display,

20 b) evaluating at least one received identification characterising the respective  
programme and taking it up in the list in association with the respective  
programme data and/or programme information,

c) sorting all received programme data and information according to certain  
preset storing criteria by a processor circuit with a written-in program according  
25 to a preset ordering algorithm and storing it in the programme journal storage  
device either automatically or after actuation of a take-over key,

d) capturing and storing automatically associated data of the reception channel  
or the reception frequency of the broadcaster, which are necessary for tuning  
the receiver circuit to the programme contribution, in the programme journal  
30 storage device together with the programme data,

e) wherein capturing takes place as a function of the selective tuning of the  
receiving apparatus to the corresponding channel or the corresponding

- frequency or tuning data associated with the broadcaster is transmitted from a broadcaster table,
- f) setting serial numbers in the display line of a programme or identifications characterising the serial numbers in the depicted programme data at the front or
  - 5 rear in the programme lines;
  - g) calling up stored programme data from the programme journal storage device by actuation of a call-up device and depiction on the display page by page according to preset sorting criteria, and
  - h) selecting a line of the depiction of the programme data for tuning the
  - 10 apparatus to a broadcaster,
  - i) tuning the apparatus for the reception of a .... selected from the electronic programme journal ...

15 [Drawing]

## Description

The invention relates to a method for setting up an electronic programme journal for television and/or sound broadcasting programmes in a television receiver for the reception of television and/or sound broadcasting signals from different broadcasting services or programme carriers and a circuit arrangement for carrying out the method

5 Radio journals, from which the individual programmes or transmission contributions, which are receivable at the respective location of reception, can be found and, more precisely, for television broadcasting as well as for sound broadcasting, have been known in script form for a long time.

10 Furthermore, it has been known since the introduction of the video text system that those broadcasting services which transmit video text pages with their programmes also transmit programme overview pages about programmes of the day or programmes of the following day through to programme information over a longer time span, which can be received, stored and displayed selectively by the receiver which comprises a video text receiver. Different broadcasting services furthermore also transmit programme overviews of other broadcasting services. Thereby, it is possible for the user 15 to always obtain an updated programme indication of the respectively selected broadcaster or, in the case that the broadcaster also transmits programme indications of other broadcasters, these likewise indicated on the display of his reception apparatus. Serving as reception apparatus is as a rule a television reception apparatus or a video recorder which is connected to a television reception apparatus so that the large area 20 screen of the television reception apparatus can be used for the depiction of the programme tables. This applies in the case that the video text recorder is incorporated in the television reception apparatus, and equally for a configuration, in which although a video-recording apparatus is present, display takes place via the screen of the television receiver connected by a bus. The video text system, now called television text, is 25 described in the trade journal "Rundfunktechnische Mitteilungen", 1983, pages 116 to 134. Besides that, it is known to undertake programming of the video recorder as a function of the programme overviews transmitted with the video text pages or video text 30

tables in such a manner that the respective programme is selected from the programme overview table, which for example contains 25 line entries and programme data, in order thereby to control the video recorder. The selected programme data are stored in a storage device of the video recorder and monitored by the processor of the video recorder so that time-dependent control of the video recorder takes place at the switch-on times and switch-off times associated in the programme data (VPV method described in "Rundfunktechnische Mitteilungen", 1986, pages 223 to 229). This method, just as other setting methods in which the switch-on times and switch-off times are enterable individually, is also possible when, besides the video text programme data, VPS data, thus data for programme-dependent control, are also co-transmitted by the broadcaster. When the fact that these are VPS data is entered during programming or these data are already pointed out in the programme overview in the video text page, the switched-on video recorder is controlled as a function of the programme data which are transmitted as programme-dependent so that, independently of the actual switch-on time, even in the case of rescheduling of the start of the programme, recording of the programme takes place at the real time of broadcasting of the programme and switching-off likewise takes place under the control of the VPS signal.

The method is described in the trade journal "Rundfunktechnische Mitteilungen", 1985, pages 161 to 169.

It is evident that for pre-programming, for example for recording by the video recorder, the user must check over the video text pages of the individual broadcasters, which co-transmit these, i.e. for programming he must switch over to different reception channels in order to undertake programming. Even when individual broadcasters transmit the programme overviews from other broadcasters likewise by video text programme tables, the user is not spared from initially having to call up all those broadcasters, in order to be able to undertake programming, which likewise make a programme preview possible. Furthermore, the user receives no overview of all programmes which are planned for broadcast in a certain time span, for example in the next hour or on the next day or within the next week, from all broadcasters receivable at the location of reception. For this purpose, he resorts in a known manner to the programme journals

which are available in script and picture and in which the programmes are listed in tabular form associated with the broadcasters. In order to be able to tune his reception apparatus to the corresponding terrestrial or satellite broadcasters or broadcasters received by cable channels, he must set the channel number or, in the case of the use of sound broadcasting transmissions, the frequencies, in the apparatus in order to be able to receive the corresponding programme which he wants to see or hear. Programming by means of coded data according to the Viewshow method by take-over of the code numbers from a programme journal is likewise possible.

10 A method for alpha-numeric station display at receivers for high-frequency electrical oscillations is known from DE 30 31 527 C2, according to which method tables with a power characteristic and a broadcaster location number are stored in further non-volatile storage devices according to the geographic distribution of the broadcaster location and associated with the tables for the broadcaster names, special programmes and  
15 transmission frequencies. These transmitting tables are compared on the basis of the received frequencies and the comparison with the stored identification data corresponding to the location numbers in the receiver and the table data are displayed alpha-numerically. The transmission contributions, which according to the present invention are designated as programmes, are in this case not indicated in detail, but only  
20 the abbreviated name of the broadcaster and the location of the broadcaster as well as, as the case may be, the broadcaster location number, power characteristic and frequency.

25 A method for programming a video recorder is known from US-PS 5,260,788, in which programme information, for example a teletext programme table, transmitted from the respectively tuned channel is displayed in that the corresponding transmission contribution or programme is selected with reference to the start time. By entering a changed start time, for example by entering 19.00, a different programme overview table from before is called up and a selection can again be made from this.

30 It is known from DE 35 27 939 A1 and the earlier application according to DE 42 40 187 A1 to compile the receivable programme data and/or programme information of the

programme video text pages in tabular form in a list according to particular criteria which is illustrated in video format on the apparatus display, association of the broadcaster abbreviation with the individual programme data being provided.

- 5 DE 42 40 187 A1 also provides two reception apparatuses, one reception apparatus scanning the video text information in the background, while, for example, a transmission contribution is received via the first reception apparatus. All information about the television programme contributions of the receivable broadcaster from the video text pages are stored. A time- and subject-oriented summary, which can be  
10 viewed by the user, is also possible.

Starting from this prior art, the object of the invention is to indicate a method for setting up an improved electronic programme journal.

- 15 The object of the invention is achieved by the method indicated in claim 1. Circuits for carrying out the method are indicated in claims 22 onwards.

Advantageous steps of the method are indicated in detail in claims 2 to 21.

- 20 The method according to the invention permits an electronic programme journal to be produced and updated in the reception apparatus and thereby affords the user the possibility of informing himself about the current range of programmes of the broadcasting services, wherein the range of programmes, which are set up from the video text pages or other programme information [*or*] programme data and associated  
25 with the broadcasting services, can be ordered according to different criteria. The simplest criterion is the listing of the currently receivable programmes of the individual broadcasting services. A further criterion can be calling-up programmes which are offered in the next hour and, more precisely, from all broadcasters which are receivable at the reception location without in this case having to switch over from one channel to  
30 another in order to have to visually evaluate video text pages, for example in the case of television transmissions, or having to wait for such programme overview tables. The user thus always automatically obtains an updated overview of the range of

programmes. The listing can also be updated, according to the scope of the programme journal storage device, to the overview of a weekly programme or even over a monthly time span or longer. This always depends on the extent to which the programme data are co-broadcast in time dependence by the broadcasting services. This applies equally to  
5 programme data which are co-transmitted in sound broadcasting and contain advance data for programmes. For broadcasting data transmitted with the programme data, namely day and clock time for start and end, such data can of course also be used for the recording control. The same applies to the taking-over of VPS or RDS data for recording or presentation control of the apparatus. Program contents can also serve as  
10 further indicating criteria in so far as the corresponding identifications are co-transmitted, for example whether a music transmission, a science transmission, a sports transmission, an entertainment programme, a news programme or the like is involved. The corresponding identifications are agreed for television broadcasting as well as also for sound broadcasting and in some cases are transmitted now already by the  
15 broadcasting services. In this manner, it is possible by reference to the received programme data to effect an association of this kind with certain criteria by a programme control. Furthermore, however, the invention also makes a freely selective association possible in that, for example, "music transmission" is entered via the control keypad. The computer program which is to be designed accordingly, in this case  
20 compiles all programmes which are listed in the programme journal according to these criteria, and this can take place before storage or during reading-out of the data from the programme journal storage device insofar as these are characterised and/or can be selected, for example, as music transmissions. The list of sorting criteria may be extended as desired. The indicated criteria are to be regarded here only by way of  
25 example as one possibility. It is self-evident that the sorting programme, which must be implemented in the process control, always does justice to these demands.

The invention furthermore for the first time indicates a completely new tuning system, in which tuning namely no longer takes place to a certain channel, as known according  
30 to the prior art, but can take place as a function of programme selection. Standing for programme here is the respective individual transmission contribution limited in time. The user selects only the programme which he wants to see or hear. This is switched on

as soon as the programme is transmitted. Otherwise, presetting is registered and the programme is switched to automatically at the switching-on instant in the programme data. A locking circuit can be provided in this case, so that switching over to a preset programme does not take place when a current programme is being viewed. If, however,  
5 a transmission is involved, which is to be shown or recorded with priority, then even a current presentation or recording is interrupted and the programme data provided with priority are drawn on for tuning and the corresponding programme is shown or recorded. Furthermore, however, the invention also offers a simple child protection device in the manner that programmes, which are, for example, liable to corrupt the  
10 young, can be blocked in a simple manner. The user can over a certain time span thus mark in advance all programmes which, for example, are not to be seen by his children. The marking of these programmes in the display has the effect that tuning to these programmes is not possible for anyone who does not know the blocking code. Only the user, who enters the blocking code or the necessary cancelling code, can cause clearing  
15 of the marked programmes. Blocking can take place block by block, thus by collecting together a plurality of programmes or in respect of each individual programme which is to be recorded or shown next in the sequence. It is self-evident that an apparatus which fulfils all these functions according to the individual method steps must be provided with a processor control which displays the required computing and storage  
20 performance. It is likewise self-evident that the programmes of the processor control are in this case to be so developed that the respective functions, which are indicated in the method steps, can be achieved.

A circuit for achieving the method always requires in every case that the received and  
25 decoded data are checked for whether programme data are involved, which data are either derived from video text pages or broadcast by the broadcaster as individual items of data in preview of a future transmission. This also applies to such programme data which contain television programmes or sound broadcasting programmes. The method according to the invention and the circuit arrangement for the evaluation are the same in  
30 both cases. If the programme carrier is a CD player, for example a multiple disc storage device, the recording data, which are put in front of the individual recorded pieces or films or the programmes at the beginning of the individual CDs, are to be regarded as

programme data and listed in the same manner so that a continuous selection of recorded picture or sound data is also possible hereby by means of the programme journal. In the case of the CD player, no tuning circuit is controlled in this case but, as a function of the programme data, the disc and the track which correspond to this  
5 programme information are selected by the drive.

If, apart from the abbreviated names of the individual programmes, detailed programme descriptions are also received and stored, the programme data at the same time also serve to enable those addresses of the storage device to be called up in which the  
10 supplementary explanations are stored so that the user can inform himself in script and picture about the programme content of the respective offer, for example a television show or a film or a piece of music, before he makes a selection in order to have the programme concerned shown or recorded. This, too, is possible by way of the electronic programme journal.  
15

The invention is described in more detail in the following with the aid of an embodiment of a receiver according to Fig. 1 and a possible depiction of an electronic programme journal on the screen of a television apparatus in Fig. 2.

20 In the block diagram in Fig. 1, a receiver is illustrated schematically with an evaluating circuit which embodies the circuit arrangement for carrying out the method. In the block diagram, an aerial for the reception of terrestrial television and/or sound broadcasting signals is represented by the reference numeral 1, a satellite reception unit by the reference numeral 2, a connection to a cable distribution network by the reference numeral 3 and a feeding-in of programmes from a mass programme storage device, for example a music computer with a large number of CDs, the tapped-off signals of which are transmitted in a modulated manner by a carrier, by connection 4. The individual connections are couplable by a selector switch 5 to the receiver circuit 6. The receiver circuit 6 consists of a tuner which is tunable to the respective transmission frequencies  
25 and an intermediate-frequency amplifier as well as a demodulator. The demodulated signal, which is fed to the further signal-processing stages 8 in the apparatus, is present at the output A. In the case that a television reception apparatus is involved, this is the  
30

picture and sound signal-processing circuit which by way of the outputs 10 and 11, drawn in dashed lines, is fed to the picture tube 9 and the loudspeaker 20, respectively. The signal-influencing in this case takes place by the processor control unit 14 by way of the control line 21 as a function of entered function-setting values which can be  
5 entered on the one hand via the local keypad 17 on the apparatus itself and on the other hand via the remote control transmitter.

Where an apparatus for the reception of radio signals, for example RDS signals or DSR signals or Musicam signals, is involved, the signal-processing circuit 8 consists  
10 exclusively of sound signal-processing stages for which the sound is emitted by a plurality of loudspeakers 20. The possibilities of recording the received signals are not illustrated here for the sake of simplicity. A radio receiver equipped with the evaluating circuit comprises either a larger display, for example a flat display, or a small picture tube in the apparatus or a connection for a television reception apparatus, on the screen  
15 of which the data are displayed, which are assembled by the method according to the invention. For this reason, the line 10 is illustrated in dashed lines, while the line 21 is illustrated as a continuous line. The evaluating circuit according to the invention in the embodiment comprises a video text decoder 12 or a decoder which selects the programme data from the offered data packets. When television signals are involved,  
20 these are video text pages which in the case of digital transmission of television signals can likewise be transmitted in the service channel, as well as the video and sound signals in the case of signal transmission according to present standards. If, on the other hand, a pure radio receiver is involved, the tapped-off programme data can be RDS data or other programme data which are offered for a previewing programme display. The  
25 decoder 12, which filters out these data and converts them by means of a separate processor into reproducible symbols, stores the pages or individual programme data in a separate storage device and, more precisely, as they are offered.

The processor control circuit 14 by way of the tuning control circuit 13 causes tuning to  
30 all broadcasters receivable at the place of installation. This takes place, for example on switching-on of the apparatus, by a search run, in which all receivable broadcasters are determined. This process can be repeated discontinuously for refreshing the data in the

storage device of the video text or RAM-data receiver 12 or be brought about on changing-over from one channel to the other or on switching-off of the apparatus. In every case, the information pages containing the programme data are also received during tuning and taken over by the video text decoder. Taking-over can also be  
5 initiated by actuation of a special take-over key at the remote control transmitter 18 or the local control 17. Furthermore, the processor control circuit by reason of a further written-in programme undertakes a new ordering of the programme data which are received by the broadcasters and orders these according to quite definite preset criteria. This criterion can for example be that all programmes, thus transmission contributions  
10 of a certain broadcaster, for example ARDI and RTL, are shown in an ordered manner for a week or a day or a month. It is however initially expedient that the processor control device with the written-in programme puts the programme data ordered in lists according to clock times one alongside the other so that the user can immediately see at which clock times and on which day which programmes are broadcast by which  
15 broadcasters. The length of the list and the contents of the list in this case depend on the respective programme data which are offered as preliminary information by the individual broadcasters over a certain time span. When such a list is drawn up, the programme data are stored in a programme journal storage device 15. These data are constantly refreshed, as already indicated previously, in that the new programme data  
20 for the preliminary information are by discontinuous or continuous search runs initially decoded by the decoder 12 and stored and the processor control circuit 14 according to the written-in programme takes these data over as new data or overwrites existing data in the storage device 15 or, if the data are identical, does not undertake any overwriting. Associated with the data are of course also the switching-on instants and, as the case  
25 may be, also switching-off instants as well as, in the case of data which come from the video text system, the VPS data, in order therewith to switch on and/or off the connected apparatus or the apparatus itself or the recording as a function of the VPS data. This evaluating circuit, as discussed here, can of course also be used in video recorders in a completely identical construction. In this case, the connected television  
30 apparatus with the picture tube 9 serves as the visual display device.

When the list of the programme contributions is set up in the discussed manner, the computer programme can also monitor which programme data are out of date, i.e. the corresponding programmes are no longer present due to the elapse of time. The list thus leads to constantly updated programme references. For this reason it is also clear that

5 the programme journal is always updated as an electronic journal and, in the case of resetting of the programme sequences or the transmitted items at short notice, the user can also get an overview relating to this, which is not possible for him by reference to printed programme journals appearing weekly, since the programme journals are printed and dispatched as early as one and a half weeks before the start of a transmission.

10 Subsequent updating is possible with the electronic programme journal. If still further textual or pictorial substantiations exist for the individual programme indications, these are to be stored in a separate storage device. In the case of call-up of an information key on the control panel 17 or the remote control 18, the programme data serve as address data for calling-up the supplementary stored programme descriptions which are then

15 likewise displayed on the screen of the picture tube 9. Furthermore, however, the invention also provides that, according to another control programme, the processor control circuit undertakes re-sorting of the data in the programme journal storage device 15 through appropriate input command by way of a key of the remote control transmitter 18 or the local control 17 in such a manner that, for example, all programme

20 contributions of Bavarian Radio BRI of one week, one day or one month are displayed. Other ordering criteria can likewise be entered, for example the selection of pure music transmissions, the selection of news transmissions and so forth. The corresponding selection criteria are adaptable via the computer program in accordance with the habits of the user. For the purpose of control, the remote control commands received by the

25 remote control transmitter 18 are prepared by the receiver 23 and fed to the processor control circuit 14.

It is evident that the indicated evaluating circuit represents a self-contained unit which can be used in different items of electronic entertainment apparatus, for example in a

30 television receiver apparatus which already makes the display available as a large display and in which video text pages with 20 or 25 lines can be shown in a known manner. This unit can however also be provided in a video recorder. The data are then

- indicated either on a separate display of the apparatus or on a connected television receiver which serves for the reproduction of the recorded transmissions. In the case of receivers of this kind, the processor control unit 14 also has not only a programme for refreshing the programme data in the storage device 15 but also determines the  
5 associated frequencies for the individual broadcasters or channels which are stored as belonging to the individual programme data so that a completely new tuning system is likewise achieved by the invention in that namely channels are no longer tuned to, but the user can with the aid of the programme journal preset the programme or switch over from the currently running programme to another one which meets his wishes without  
10 first having to get himself an overview of the current programmes by channel-skipping or having to call up the programme overview tables of a particular broadcaster in order to see which transmission is just being broadcast by this broadcaster or which programme is just being received.
- 15 The electronic programme journal thus makes it possible that through selection of the individual programme lines, which can be effected for example by the prefixed serial numbers or by cursor control, tuning of the receiver circuit to the respective broadcaster takes place in that a cursor movement is achieved by means of the remote control transmitter 18 and the line respectively marked by the cursor is taken over, whereby the  
20 receiver is tuned to the channel or the frequency associated with the programme. The programme data, the switch-on data or explanatory programme data or the prefixed number can of course be stored to be concealed so that switching-on is also possible in that only one programme line is called up, in which the programme data or parts of the programme data, for example the description of the programme, are displayed.  
25 Although the necessary control data are thereby also called up automatically, they are not displayed. No limit is set here to the corresponding user control. The quantity of data depicted depends merely on the possibility of depiction on the screen.

In Fig. 2, a partial detail of a page of an electronic programme journal is illustrated by  
30 way of example, which is also shown as an image on the screen, for example of a television receiver. It is evident from the illustration that Bavarian Radio Third Programme is indicated by the serial number 01 in the first line. The programme

contribution or the programme itself displays "Music barn" in the title. This transmission starts at 20.15 and, according to plan, it ends about 21.30. Furthermore, the data are displayed in the upper corner field of the screen 19. In the case of the sorting criterion selected here, all transmissions of one hour are displayed, for which the clock times are displayed as start times in the present case. The corresponding programme from WDRI is indicated with the serial order number 02, that of NRIII in line 3 and that of ARDI in line 4. It is evident from this that if the user wants to see the "Sea Coast" transmission, for example, he need enter only the short notation 03 and the corresponding programme is already selected. He does not need to know in this case whether NRIII is stored at storage location 3 or 25 of his tuning storage device in the tuning equipment 13. The system automatically undertakes association. The same applies also to the transmission "Travel Quiz" when this is called up. The calling-up itself can take place via the serial number entry or via cursor control in that the remote control transmitter 18 is so constructed that switching takes place from one illustrated line to the next illustrated line when an appropriate function setter is actuated on the remote control transmitter. By entering a further control command, corresponding programme data are taken over and, if the preset time agrees with the actual time or the current transmission is running, the programme is automatically switched on. For that reason, a sorting programme can also be provided, which indicates only the current transmissions and for example also indicates still remaining running times or already elapsed times and remaining times in order to give the user information about whether it is still worthwhile watching the current transmission to the end or not. All these selection criteria can be called up by a user control, for example from a criteria catalogue. The data stored in the storage device 15 according to Fig. 1 are then immediately displayed in an ordered manner. It is also possible that re-storing takes place in the storage device itself. It is however more expedient to structure the software such that the reorganisation takes place by way of a buffer which prepares the data from the storage device 15 for selective depiction according to the selection criteria. Thus, it is possible simply to again resort to a clearly viewable programme journal which is stored in the storage device 15, the programme journal storage device, according to a particular ordering system.

The present invention is not restricted only to high-frequency-received information about the range of programmes of a certain time slot. The invention can also be used, for example, in connection with a music computer with a large number of LCDs in order to provide the user with an overview of the individual programmes or recorded  
5 music films or feature films in order that he can make a selection from what is offered. The individual data, which are associated with the programme, are stored in the same manner as in the programme journal overview and, more precisely, in the storage device  
15. If they are not modulated by a high-frequency carrier, the data can be fed directly into the signal-processing circuits downstream of the demodulator. For this purpose, the  
10 connection 7 is illustrated symbolically in Fig. 1.

**Claims**

1. Method for setting up an electronic programme journal for television and/or sound broadcasting programmes in a television receiver for the reception of television and/or sound broadcasting signals from different broadcasting services or programme carriers which emit programme data and/or programme information in video text (television text) programme overview pages of the respective broadcasting service and/or other broadcasting services or feed these into cable networks and/or send programme information as preliminary information to sound broadcasting transmission stations or feed this into cable networks or in which programme data are stored on the programme carrier, and for tuning the television reception apparatus as a function of this information, with the following features:
  - a) storing the received programme data and/or programme information of the video text (television text) pages, or the preliminary programme information, received with the sound broadcasting signals, or the programme data from the programme carrier in tabular form in a list in a programme journal storage device and showing it on the television reception apparatus display,
  - b) evaluating at least one received identification characterising the respective programme and taking it up in the list in association with the respective programme data and/or programme information,
  - c) sorting all received programme data and information according to certain preset storing criteria by a processor circuit with a written-in program according to a preset ordering algorithm and storing it in the programme journal storage device either automatically or after actuation of a take-over key,
  - d) capturing and storing automatically associated data of the reception channel or the reception frequency of the broadcaster, which are necessary for tuning the receiver circuit to the programme contribution, in the programme journal storage device together with the programme data,
  - e) wherein capturing takes place as a function of the selective tuning of the receiving apparatus to the corresponding channel or the corresponding frequency or tuning data associated with the broadcaster is transmitted from a broadcaster table,

- f) setting serial numbers in the display line of a programme or identifications characterising the serial numbers in the depicted programme data at the front or rear in the programme lines;
  - 5 g) calling up stored programme data from the programme journal storage device by actuation of a call-up device and depiction on the display page by page according to preset sorting criteria, and
  - h) selecting a line of the depiction of the programme data for tuning the apparatus to a broadcaster,
  - i) tuning the apparatus for the reception of a programme selected from the 10 electronic programme journal takes place by inputting the serial number associated with the programme or the identification or, in the case of a cursor control, by controlling the programme line using the cursor and by issuing a take-over command by pressing a key of a take-over device, wherein the programme is received at the time which is indicated as the transmission time in 15 the programme display and, if the selected programme is already being broadcast this is automatically shown or reproduced at once, wherein the programme journal, during television reception, is hidden in the case of depiction on the same display, or the display is hidden only by actuation of a command key,
  - 20 j) the reception circuit is tuned to the channel or the frequency which is associated with the programme,
  - k) in the case of relatively long lists, the programmes are successively displayed page by page automatically or by actuating a call-up key, or are displayed continuously on the display.
- 25
- 2. Method according to claim 1, characterised by the following method steps:
    - a) checking the video text pages (television text pages) or the programme information pages broadcast by a broadcaster in respect of contained programme tables or programme information data,
    - 30 b) taking over programme data indicated in programme information data or tables if the programme information data or tables are ascertained,

c) inserting programme data, which have not yet been stored, according to an ordering algorithm and overwriting or suppressing the programme data already stored,

- 5 d) examining the video text pages (television text pages) or the programme information in the case of sound broadcasting transmissions of the further receivable broadcasters in like manner by selective tuning, and ordering the data associated with the programmes according to method step (b) and likewise storing it in the programme journal storage device,
- 10 e) list-wise capturing of the programme data taking place over a certain time span by reference to the transmission data statements (calendar day, clock time) associated with the programme data, for example over a time span of one week.

3. Method according to claim 1, characterised in that additional switch-on data, which is indicated on the screen marked for example by "pre-selection" or by marking 15 or coloured backing of the programme lines, are preset for the programme data which has been selected for reception.

4. Method according to claim 3, characterised in that the preset data are priority data which are associated with the programme data by actuation of a priority-setting 20 device and that, in the case of programme overlap or reception of a current transmission, the receiver is switched over or switched on in the tuning circuit to the broadcaster as a function of the priority data, by way of which the programme with priority is broadcast.

5. Method according to either claim 1 or claim 2, characterised in that programme 25 data stored in the programme journal storage device by the processor control are erased automatically when the end of the programme is no longer receivable due to elapse of time or due to programme-dependent identification.

6. Method according to either claim 1 or claim 2, characterised in that the video 30 text pages (television text pages) are substituted by data of the service channel in the case of digital transmission of television signals and the take-over of the programme

data into the programme journal storage device takes place in like manner according to the indicated method.

7. Method according to either claim 1 or claim 2, characterised in that data allowing locking are addable in addition to each programme line and the data indicated therein and that the programme line is displayed due to prefixed or inserted or added identifications or due to corresponding marking or coloured backing on input of a signal allowing locking by actuation of an input device delivering a locking signal and in that locking is cancellable only by an access key known to the authorised user.

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8. Method according to claim 7, characterised in that the blocked programmes are displayed by means of cursor control and allocation key by coloured identification or other identifications and that the television receiver, in the case of a programme being blocked, blocks switching-on of the programme or skips the programme at the set clock time.

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9. Method according to any one of the preceding claims, characterised in that the data in the programme journal storage device reaching the display, or all data including the concealed data, are output by a printer interface of the television receiver to a printer on input of a printer control command by way of the processor control equipment.

20

10. Method according to either claim 1 or claim 2, characterised in that the programme data in the programme journal storage device are subjected to a particular selection ordering according to freely selectable criteria by appropriate inputs by way of a keypad or by user control on the screen and the ordered data are displayed according to the selected ordering program.

25

11. Method according to either claim 1 or claim 2, characterised in that the data in the programme journal storage device are transmitted via an interface connectable to a computer by input of a transfer command, which computer is internal or external to the apparatus, and which manages longer lists of programme data over longer time spans and corresponds with the processor of the processor control in the apparatus in such a

30

manner that the programme data stored in the programme journal storage device are updated.

12. Method according to either claim 1 or claim 2, characterised in that the data in the programme journal storage device are refreshed cyclically at least once a day or refreshed constantly and in that newly added new data, taken over from the video text pages or programme information pages, are added and existing data are not renewed or overwritten.  
5
- 10 13. Method according to either claim 1 or claim 2, characterised in that the data in the programme journal storage device are refreshed, renewed or added on switching-off the apparatus or on switching-over of the apparatus from the normal operating state into stand-by mode or in stand-by mode and in that the apparatus is switched off with a delay or switched over with a delay into stand-by mode during updating of the data in  
15 the programme journal storage device, wherein the delay corresponds to the required evaluating time for updating the programme data or in that refreshing of the data takes place constantly during stand-by mode.
- 20 14. Method according to either claim 1 or claim 2, characterised in that the data from the programme journal storage device are placed into a current television picture depicted on the display or shown in a selected partial region of the display.
- 25 15. Method according to any one of claims 1, 2 or 10, characterised in that the programme data from the programme journal storage device is displayed in a re-sorted manner by calling up a certain sorting program in such a manner that programmes are displayed which are running at the time of calling-up or which are receivable in a next hour window or in the day window.
- 30 16. Method according to either claim 1 or claim 2, characterised in that the programme data are ordered additionally according to programme contents and can be called up in an ordered manner and displayed on call-up of the programme data according to programme contents, such as sports programmes, science programmes,

music programmes, entertainment programmes and news programmes as well as according to other programme-ordering criteria.

17. Method according to either claim 1 or claim 2, characterised in that the programme data in the programme journal storage device are addresses for calling-up detailed programme depictions which are stored in another storage device and in that the detailed programme depictions can be called up by actuation of a page-turning key.

5 18. Method according to claim 13, characterised in that programmes, which are ordered according to thematic fields, are blocked for reception by the input of blocking signals and released by input of a cancellation signal.

10 19. Method according to either claim 1 or claim 2, characterised in that the apparatus queries all receivable broadcasters for programme data and the processor 15 control undertakes updating of the programme data in the programme journal storage device on switching the apparatus from the off state into stand-by mode or into the normal operating state.

20 20. Method according to either claim 1 or claim 2, characterised in that the programme data can contain the following codings, which are storable altogether or 25 selectively in the programme journal storage device:

- name of the programme,
- kind of programme,
- broadcasting service (abbreviated name),
- 25 abbreviated name of the broadcaster, e.g. BRI,
- VPS-activation (yes/no),
- RDS-activation (yes/no),
- programme start times,
- programme end times,
- 30 programme classification data (music, entertainment, news),
- radio activation data in order to control the recording or presentation when correspondingly coded transmissions are involved as a function of

identification signals which are transmitted together with the radio broadcasting transmission,

- and programme description data.

5 21. Method according to either claim 1 or claim 3, characterised in that it is combined with methods of conventional programme selection in an apparatus in such a manner that either the conventional programme selection or the programme selection or the display of the programme according to the indicated method is drawn on for the operation of the apparatus.

10

22. Circuit arrangement for carrying out the method according to claim 1.

23. Circuit arrangement for carrying out the method according to claim 22 in conjunction with a CD programme storage device, characterised in that the  
15 implementation circuit arrangement lists existing demodulated programme data, associated with the programmes (video or sound) stored on the CD and also stored on the CD, in the form of a programme journal and in that the programme data stored in the programme journal storage device are issued to the indication by the processor control, wherein the indication as a display is a component of the television reception apparatus.

20

24. Circuit arrangement according to either claim 22 or claim 23, characterised in that additional function keys or setting members are present in the control panel of the evaluating apparatus or on the remote control transmitter and in that, on actuation of the additional function keys or setting members, the data in the programme journal storage  
25 device are displayed according to specific evaluation criteria corresponding to specific programmes input into the processor of the processor control.

25. Circuit arrangement according to claim 22, characterised in that a storage device with a broadcaster table is contained in the tuning circuit and in that the processor  
30 control undertakes an allocation to the broadcasters based on the received programme data and stores the programme data accordingly in the programme journal storage device in association with the corresponding broadcasting service.

26. Circuit arrangement according to claim 22, characterised in that a controller automatically initiates the fading out of the programme journal on the display and displays the received picture information of a current programme on switching-on of the  
5 current programme.
27. Circuit arrangement according to claim 22, characterised in that the evaluating circuit comprises a separate receiver circuit and in that the second receiver circuit is provided for the reception of current transmissions or for the reception of broadcasters  
10 tuned by way of the programme selection.
28. Circuit arrangement according to claim 22, characterised in that the receiver circuit comprises a demodulator for digitally transmitted data and in that the data transmitted in the service channel are evaluated by the processor control to the extent  
15 that they contain programme data.
29. Circuit arrangement according to claim 22, characterised in that the receiver circuit receives signals which are offered terrestrially, distributed by way of satellite or by way of channels.  
20
30. Circuit arrangement according to claim 22, characterised in that the television receiver comprises a printer interface.
31. Circuit arrangement according to claim 22, characterised in that the television  
25 receiver comprises an interface for a connectable computer and in that the processor transmits the data, stored or storable in the programme journal storage device via a transmission programme to the external computer over a longer time span.
32. Circuit arrangement according to claim 22, characterised in that a generator is  
30 provided in the television receiver and, under the control of the process control equipment, effects the search run through all reception ranges continuously or

discontinuously or at certain times or as a function of the mode switching of the apparatus (stand-by) full operation switching-on/switching-off.

33. Circuit arrangement according to claim 22, characterised in that a cross-fading circuit for cross-fading the programme journal onto a displayed television picture of a currently receivable transmission is provided in the television receiver.

34. Circuit arrangement according to claim 22, characterised in that a change-over switch is provided in the control panel, actuation of which causes switching-over of the 10 operation of the receiver circuit to channel selection or to programme selection from the programme journal or *vice versa*.

35. Circuit arrangement according to claim 22, characterised in that the programme journal storage device is an erasable read/write memory storage device (RAM, 15 EEPROM).

1 page of drawings follows

**Captions**

Fig. 2

5      Programme journal 23.3.

01	BRIII	Music Barn	20.15	21.30	
02	WDRI	In the Jungle	20.15	21.00	
03	NRIII	Sea Coast	20.20	21.15	
10	04	ARDI	Travel Quiz	20.20	21.50